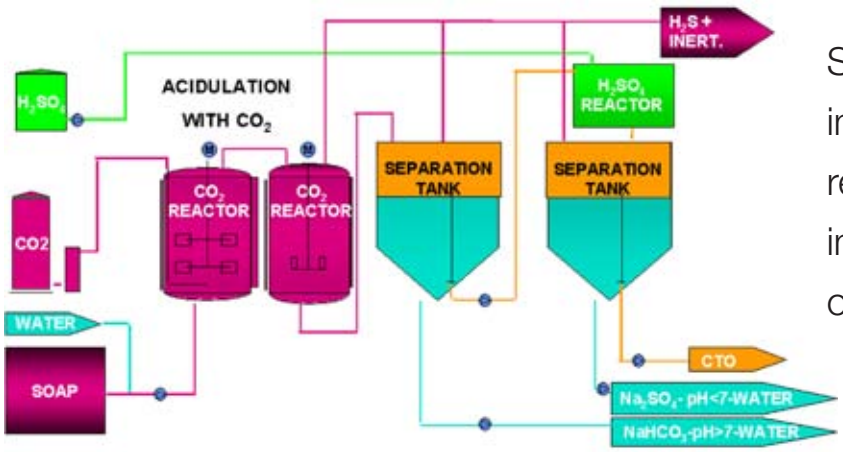
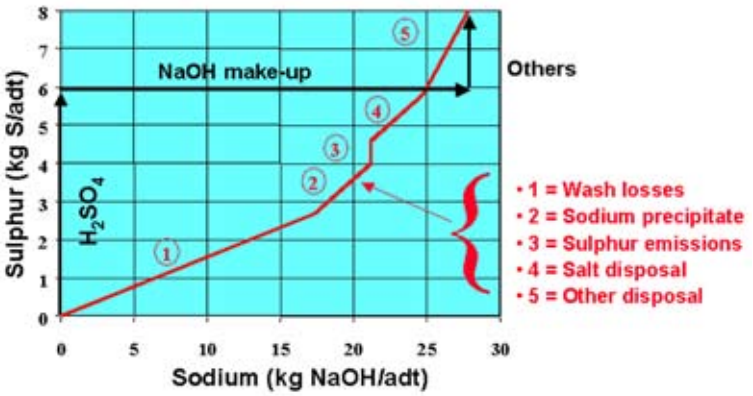
PULP & PAPER

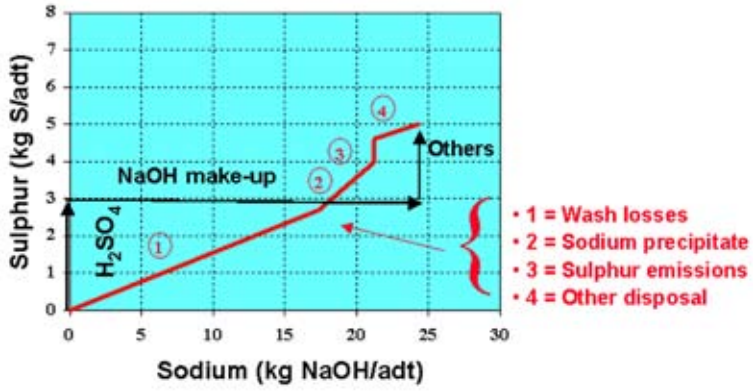
CO_2 for Tall Oil recovery



Several pulp mills have successfully implemented this process which has resulted in greater savings and has improved the environmental impact of Tall Oil recovery.



Sodium-sulphur balance without CO_2



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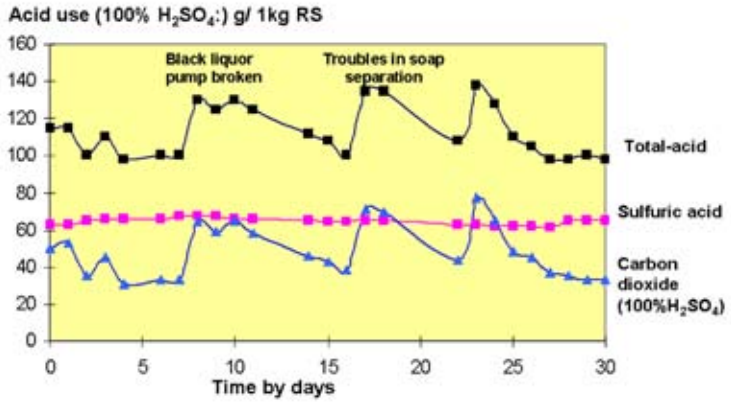

Trend of acid use in soap oil cooking

Replacing H_2SO_4 with CO_2 for Tall Oil recovery provides significant benefits:

- it lowers sulphur input in the recovery cycle and allows better control of the Na/S balance
- it reduces the consumption of H_2SO_4 and NaOH
- it improves Tall Oil quality
- it lowers sulphur emissions in air and water

Tall Oil recovery with CO_2

Acidfication of the Tall Oil soap recovered from the black liquor is performed in two steps:

- a neutralization step with gaseous CO_2 followed by a proprietary treatment and a separation stage (the $NaHCO_3$ brine is sent to recovery)
- a final acidfication step with H_2SO_4 (merchant or recovered from ClO_2 generator) and a separation stage (the Na_2SO_4 brine is sent to recovery)

Facts and Figures

The first CO_2 Tall Oil Recovery unit was installed in 1994 at the Metsä-Botnia mill in Kemi, Finland, and has been running smoothly ever since.

Roughly 50% of the previously used H_2SO_4 has been replaced by CO_2 (70-120 kg CO_2 per ton of Tall Oil). As a result of this lower sulphur input in the Kraft cycle (see figures), improvments have been realized in terms of process operation, economics and environmental impact

- Significant savings of NaOH make-up thanks to lower ash salt disposal from precipitator (see figures)
- Possible use of waste H_2SO_4 from ClO_2 generators instead of merchant H_2SO_4
- Recovery cycle easier to control and run
- Less malodorous emissions of sulphurous gases

The Kemi mill has also found an improvment of Tall Oil quality and yield. This patent pending process which combines economic efficiency and environmental soundness is provided by Air Liquide on a worldwide basis.

AIR LIQUIDE

Air Liquide Gas AB | Lundavägen 151 | 212 24 Malmö | Tel 040-38 10 00 | Fax 040-43 69 43
| www.airliquide.se | info.sweden@airliquide.com |

Air Liquide Polargas Oy | Typpitie | 90650 Oulu | Puh. 08-31925711 | Fax 08-31925722
| www.airliquide.fi | info.polargas@airliquide.com |

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